ABSTRACT OF THE DISCLOSURE

A variable-reflective tunable optical filter includes an interferometer adapted to control the powers of added or dropped signals and an optical waveguide grating to select the wavelength channels of the added or dropped signals. The waveguide grating is tunable to filter a dropped signal from an input data stream and filter an added signal into an output data stream. While a reflection band of the waveguide grating is being adjusted to tune a wavelength channel, the phase of at least one leg of the interferometer may be adjusted to direct signals of any wavelength channel selected by said waveguide from the input data stream to the output data stream, thereby providing hitless optical add-drop multiplexing.